

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of claims:

1. (original) A package comprising:
 - a substrate including an upper surface ground plane connected to a lower surface ground plane by vias through the substrate;
 - a die located on the upper ground plane and including a die pad;
 - a transmission path including:
 - on the upper surface of the substrate, a bonding pad connected to a first transmission line itself connected to a transition pad and
 - on the lower surface of the substrate, a second transmission line connected to the transition pad by a via through the substrate;
 - a wire bond extending from the bonding pad to the die pad;
 - a portion of the upper surface ground plane and the lower surface ground plane connected by vias defining opposing walls on either side of the transmission path for signal isolation; and
 - a low pass filter for compensating wire bond inductance, the filter including:
 - a first capacitance formed between the bonding pad and at least the lower surface ground plane,
 - the wire bond inductance, and
 - a second capacitance formed between the die pad and at least the

upper surface ground plane.

2. (original) A package comprising:
 - a die located on a ground structure;
 - a transmission path including a bonding pad isolated from the ground structure;
 - a die pad on the die;
 - a wire bond extending between the die pad and the bonding pad; and
 - a low pass filter for compensating wire bond inductance, the filter including:
 - a first capacitance formed between the bonding pad and the ground structure,
 - the wire bond inductance, and
 - a second capacitance formed between the die pad and the ground structure wherein, for a given frequency requirement and return loss, the first and second capacitances are tailored to reduce the wire bond inductance.
3. (original) The package of claim 2 in which the ground structure includes an upper ground plane connected to a lower ground plane, the die is placed on the upper ground plane, and the bonding pad is co-planar with the upper ground plane.
4. (original) The package of claim 3 in which the lower ground plane includes a portion under the bonding pad.

5. (original) The package of claim 3 in which the ground structure defines opposing walls on either side of the transmission path.
6. (original) The package of claim 3 further including a substrate between the upper ground plane and the lower ground plane.
7. (original) The package of claim 6 further including vias through the substrate interconnecting the upper and lower ground planes.
8. (original) The package of claim 3 in which the bonding pad is connected to a first transmission line which is connected to a transition pad co-planar with the upper ground plane and the transition pad is connected to a second transmission line co-planar with the lower ground plane.
9. (original) A package comprising:
 - a substrate including an upper surface ground plane connected to a lower surface ground plane by vias through the substrate;
 - a die located on the upper ground plane and including a die pad;
 - a transmission path including:
 - on the upper surface of the substrate, a bonding pad connected to a first transmission line itself connected to a transition pad and,
 - on the lower surface of the substrate, a second transmission line

connected to the transition pad by a via through the substrate;
a wire bond extending from the bonding pad to the die pad; and
a portion of the upper surface ground plane and the lower surface ground
plane connected by vias defining opposing walls on either side of the transmission path
for signal isolation.

10. (original) The package of claim 9 further including a low pass filter for
compensating wire bond inductance, the filter including:

a first capacitance formed between the bonding pad and at least the lower
surface ground plane,
the wire bond inductance, and
a second capacitance formed between the die pad and at least the upper
surface ground plane.

11. (original) The package of claim 9 in which the upper surface ground
plane surrounds the bonding pad, the first transmission line, and the transition pad.

12. (original) The package of claim 9 in which the lower surface ground
plane and the second transmission line terminate proximate an edge of the substrate to
facilitate probing.

13. (original) A package comprising:
a substrate including an upper surface ground plane connected to a lower

surface ground plane by vias through the substrate;

 a die located on the upper ground plane and including a die pad;

 a transmission path including:

 on the upper surface of the substrate, a bonding pad connected to a first transmission line itself connected to a transition pad and,

 on the lower surface of the substrate, a second transmission line connected to the transition pad by a via through the substrate;

 a wire bond extending from the bonding pad to the die pad;

 a portion of the upper surface ground plane and the lower surface ground plane connected by vias defining opposing walls on either side of the transmission path for signal isolation;

 the upper surface ground plane surrounding the bonding pad, the first transmission line, and the transition pad; and

 the lower surface ground plane and the second transmission line terminating proximate an edge of the substrate to facilitate probing.

14. (original) A package comprising:

 a substrate including an upper surface ground plane electrically connected to a lower surface ground plane;

 a transmission path including:

 on the upper surface of the substrate, a bonding pad electrically connected to a first transmission line and,

 on the lower surface of the substrate, a second transmission line

electrically connected to the first transmission line;
a portion of the upper surface ground plane and the lower surface ground plane defining structure on either side of the transmission path for signal isolation; and the upper surface ground plane surrounding the bonding pad and the first transmission line.

15. (previously presented) A package comprising:
a substrate including an upper surface ground plane electrically connected to a lower surface ground plane;
a transmission path including:
on the upper surface of the substrate, a bonding pad electrically connected to a first transmission line and,
on the lower surface of the substrate, a second transmission line electrically connected to the first transmission line;
a portion of the upper surface ground plane and the lower surface ground plane defining structure on either side of the transmission path for signal isolation, including a portion of the upper surface ground plane surrounding the bonding pad and the first transmission line; and
the lower surface ground plane and the second transmission line terminating proximate an edge of the substrate to facilitate probing.

16. (original) A package comprising:
a substrate including an upper surface ground plane connected to a lower

surface ground plane by vias through the substrate;

 a die located on the upper ground plane and including a die pad;

 a transmission path including:

 on the upper surface of the substrate a bonding pad connected to a first transmission line itself connected to a transition pad and,

 on the lower surface of the substrate a second transmission line connected to the transition pad by a via through the substrate;

 a wire bond extending from the bonding pad to the die pad; and

 a low pass filter for compensating wire bond inductance, the filter including:

 a first capacitance formed between the bonding pad and at least the lower surface ground plane,

 the wire bond inductance, and

 a second capacitance formed between the die pad and at least the upper surface ground plane.

17. (original) The package of claim 16 further including a portion of the upper surface ground plane and the lower surface ground plane connected by vias defining opposing walls on either side of the transmission path for signal isolation.

18. (cancelled)

19. (previously presented) An interconnect device for use between a bonding

pad on a first plane and a die pad on a second plane, the device comprising:

- a ground plane co-planar with the first plane;
- at least one wire extending from the bonding pad to the die pad;
- the bonding pad co-planar with the ground plane and connected to a transmission line co-planar therewith; and
- the transmission line connected to a transition pad co-planar therewith.

20. (previously presented) A package comprising:

- a substrate including an upper surface ground plane connected to a lower surface ground plane by vias through the substrate;
- a die located on the upper ground plane and including a die pad;
- a transmission path including:
 - on the upper surface of the substrate, a bonding pad connected to a first transmission line itself connected to a transition pad and,
 - on the lower surface of the substrate, a second transmission line connected to the transition pad by a via through the substrate;
 - a wire bond extending from the bonding pad to the die pad; and
 - a portion of the upper surface ground plane and the lower surface ground plane connected by vias defining opposing walls on either side of the transmission path for signal isolation,
- wherein the lower surface ground plane and the second transmission line terminate proximate an edge of the substrate to facilitate probing.

21. (previously presented) A package comprising:

a substrate including an upper surface ground plane connected to a lower surface ground plane by vias through the substrate;

a die located on the upper ground plane and including a die pad;

a transmission path including:

on the upper surface of the substrate, a bonding pad co-planar with said upper surface ground plane connected to a first transmission line itself connected to a transition pad and,

on the lower surface of the substrate, a second transmission line connected to the transition pad by a via through the substrate;

a wire bond extending from the bonding pad to the die pad; and

a portion of the upper surface ground plane and the lower surface ground plane connected by vias defining opposing walls on either side of the transmission path for signal isolation.

22. (previously presented) A package comprising:

a substrate including an upper surface ground plane connected to a lower surface ground plane by vias through the substrate;

a die located on the upper ground plane and including a die pad;

a transmission path including:

on the upper surface of the substrate, a bonding pad connected to a first transmission line itself connected to a transition pad, the bonding pad wider than the first transmission line, and,

on the lower surface of the substrate, a second transmission line connected to the transition pad by a via through the substrate; a wire bond extending from the bonding pad to the die pad; and a portion of the upper surface ground plane and the lower surface ground plane connected by vias defining opposing walls on either side of the transmission path for signal isolation.